Applicants respectfully disagree and traverse this objection.

As the specification indicates at page 7, lines 9-10, Figure 2 shows an alignment of "the regions of identity between the amino acid sequences of the t-PALP protein and translation product of the human mRNA for t-PA (SEQ ID NO:3)." Thus, the specification clearly refers to only the portion of the t-PA sequence shown in Figure 2 as SEQ ID NO:3. However, in order for SEQ ID NO:3 to comply with the formatting requirements of 37 C.F.R. § 1.822(d)(4), the first amino acid at the amino terminal of the partial sequence of t-PA, residue 191, is enumerated as number 1. Accordingly, Applicants submit that Figure 2 is consistent with its description, and respectfully request that the objection to the specification be withdrawn.

II. Rejection of the Claims under 35 U.S.C. §§ 101 and 112, First Paragraph.

The Examiner rejected claims 21-71 and 73-74 under 35 U.S.C. § 101 because the invention is allegedly not supported by either a specific and substantial asserted utility or a well established utility. (*See* Paper No. 17, Pages 3-4.) The Examiner contends that there is no appreciable homology between SEQ ID NO:2 and SEQ ID NO:3 and that there is no data to support the putative function of the protein of SEQ ID NO:2. The Examiner further rejected claims 21-71 and 73-74 under 35 U.S.C. § 112, first paragraph, because one skilled in the art would allegedly not know how to use the claimed invention because it is supposedly not supported by either an asserted utility or a well established utility. Applicants have canceled claims 56 and 71, thereby obviating any rejection of these claims. Thus, Applicants respond to the rejection as it applies to claims 21-55, 57-70, and 73-74.

Applicants respectfully disagree and traverse these rejections.

A rejection under 35 U.S.C. § 101 is improper when a person of ordinary skill in the art would find credible disclosed features or characteristics of the invention made by the Applicant in the written description of the invention. M.P.E.P. § 2107.01(II)(B) at 2100-37. In addition, an Applicant need only make one credible assertion of specific utility for the claimed invention to satisfy 35 U.S.C. § 101; additional statements of utility, even if not "credible," do not render the claimed invention lacking in utility. *See, e.g.*, *Raytheon v. Roper*, 724 F.2d 951, 958, 220 U.S.P.Q. 592, 598 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 835 (1984) ("When a properly claimed invention meets at least one stated objective, utility under 35 U.S.C. § 101 is clearly shown."). Thus, if Applicant makes one credible assertion of utility, utility for the claimed invention as a whole is established. M.P.E.P. § 2107.01(I) at 2100-36. Further, finding a lack of utility is also improper if a person of ordinary skill in the art would know of a use for the claimed invention at the time the application was filed. M.P.E.P. § 2107.01(II)(B) at 2100-37.

Contrary to the Examiner's assertions, Applicants respectfully submit that there is significant homology between SEQ ID NO:2 and SEQ ID NO:3 within the predicted kringle domain of t-PALP, residues 4-63 of SEQ ID NO:2, and within the predicted protease domain of t-PALP, residues 64-242 of SEQ ID NO:2. (*See* specification at page 3, lines 20-24, page 5, lines 23-28, page 10, lines 23-25, page 13, lines 7-11, and Figure 2.) Thus, the specification already contains data supporting the putative function of t-PALP, and more specifically, data showing higher homology for the specific domains as suggested by the Examiner. (*See* Paper No. 17, Page 3.)

Further, although the Examiner discussed the use of t-PALP as a hybridization probe in the rejection, there are other asserted utilities that were not addressed. (*See* Paper No. 17, Page 4.) Such utilities include the use of t-PALP to (1) treat many vascular

diseases, such as stroke, deep-vein thrombosis, peripheral arterial occlusion, pulmonary embolism, and myocardiothrombosis, and (2) induce growth of hepatocytes and regeneration of liver tissue. (*See* Specification at page 6, line 23 to page 7, line 1.) Accordingly, Applicants respectfully submit that the presently claimed invention possesses credible, well-established utilities, as indicated above, which constitute patentable utilities under 35 U.S.C. § 101. Because Applicants' assertions of utility are sufficient to satisfy the requirements of 35 U.S.C. § 101, it is respectfully requested that the Examiner's rejection of claims 21-55, 57-70, and 73-74 under 35 U.S.C. § 101 be reconsidered and withdrawn.

In addition, the Federal Circuit and its predecessor determined that the utility requirement of Section 101 and the how to use requirement of Section 112, first paragraph, have the same basis, *i.e.*, the disclosure of a credible utility. *See In re Brana*, 51 F.3d 1560, 1564, 34 U.S.P.Q.2d 1436, 1441 (Fed. Cir. 1995); *see also In re Jolles*, 628 F.2d 1322, 1326 n.11, 206 U.S.P.Q. 885, 889 n. 11 (CCPA 1980); *In re Fouche*, 439 F.2d 1237, 1243, 169 USPQ 429, 434 (C.C.P.A. 1971). As discussed above, the specification teaches specific and well-established utilities of the claimed invention, thereby enabling the skilled artisan to use the claimed nucleic acid molecules. Since the specification teaches how to use the claimed nucleic acid molecules with only routine experimentation and the specification describes specific and immediate utilities for the claimed nucleic acid molecules, Applicants submit that the full scope of the claims is enabled. Accordingly, it is respectfully requested that the Examiner's rejection of claims 21-55, 57-70, and 73-74 under 35 U.S.C. § 112, first paragraph, be reconsidered and withdrawn.

III. Rejections of the Claims under 35 U.S.C. §112.

A. Claims 73-74

The Examiner has rejected claims 73-74 under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. (*See* Paper No. 17, Pages 5-7.) In particular, the Examiner contends that the specification allegedly discloses only a single species of the claimed genus.

Applicants respectfully disagree and traverse this rejection.

The test for the written description requirement is whether one skilled in the art could reasonably conclude that the inventor has possession of the claimed invention in the specification as filed. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563, 19 U.S.P.Q.2d 1111, 1116 (Fed. Cir. 1991); M.P.E.P. § 2163.02.

The Federal Circuit recently re-emphasized the well-settled principle of law that "[t]he written description requirement does not require the applicant 'to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed,'" *Union Oil Co. v. Atlantic Richfield Co.*, 208 F.3d 989, 54 U.S.P.Q.2d 1227 (Fed. Cir. 2000). While the applicant must "blaze marks on trees," rather than "simply [provide] the public with a forest of trees;" an Applicant is not required to explicitly describe each of the trees in the forest (*See Unocal*, 208 F.3d at 1000). The Court emphasized the importance of what the person of ordinary skill in the art would understand from reading the specification, rather than whether the specific embodiments had been explicitly described or exemplified.

Indeed, as the court noted, "the issue is whether one of skill in the art could derive the claimed ranges from the patent's disclosure." *Unocal*, 208 F.3d at 1001 (emphasis added).

In an analysis of written description under 35 U.S.C. § 112, first paragraph, the Examiner bears the initial burden of presenting a *prima facie* case of unpatentability. This burden is discharged if the Examiner can present evidence or reasons why one skilled in the art would *not* reasonably conclude that Applicants possessed the subject matter as of the priority date of the present application. *In re Wertheim*, 541 F.2d 257, 262, 191 U.S.P.Q.2d 90, 96 (C.C.P.A. 1976); M.P.E.P. § 2163.04. In the instant case, Applicants respectfully submit that the Examiner has not met this burden.

Applicants respectfully disagree with the Examiner and submit that one skilled in the art could reasonably conclude that Applicants had possession of the polynucleotides encompassed by the rejected claims, in the present application as filed. Applicants further submit that the Examiner has underestimated both the teaching of the present application and the level of skill in the art on the priority date of the present application.

Moreover, Applicants recognize that the Examiner is relying on language regarding a "representative number" of a claimed genus set forth in the Guidelines for Examination of Patent Applications Under the 35 U.S.C. § 112, ¶ 1 "Written Description" Requirement ("Guidelines") when reciting the procedures followed in analyzing whether the description requirement for each of the claims at issue is satisfied. However, even assuming, *arguendo*, that the Guidelines comport with the law, the Guidelines also define a "representative number" as "an inverse function of the skill and knowledge of the art." (*See* Guidelines at Page 1106.) Applicants note that the level of skill in the art on the priority date of the present application was very high. Accordingly, one skilled in the art, enlightened by teachings of the present application (particularly, for example, the sequence

of t-PALP and the description of fragments), could readily envision countless polynucleotide sequences that comprise the specified polynucleotide.

Applicants respectfully assert that their position coincides with that of the United States Patent and Trademark Office ("USPTO") as set forth in the recently published Revised Interim Guidelines for Examination of Patent Applications Under the 35 U.S.C. § 112, ¶ 1 "Written Description" Requirement ("Revised Interim Guidelines"). In particular, the USPTO's response to Comments 34 and 35 explicitly states that "the office does *not* agree with the comment that the scope of such an [open-ended] EST claim ("a DNA comprising the EST of SEQ ID NO:1" or "a gene comprising the EST of SEQ ID NO:1") is necessarily too large to satisfy the written description requirement." (*See* Revised Interim Guidelines at Pages 71433-34.) Accordingly, open-ended claims (*i.e.*, claims using "comprising" as a transitional term), such as those pending in the present application, do satisfy the written description requirement by virtue of the disclosure of the sequence of the t-PALP gene and the description of fragments. Applicants assert that, in agreement with the USPTO's own commentary and contrary to the Examiner's position, the pending claims do indeed satisfy the written description requirement as supported by the specification as originally filed. From reading the specification, the skilled person would immediately recognize that, at the time the specification was filed, the Applicants had "invented what is claimed" (*Vas-Cath*, 935 F.2d at 1563); namely, a genus of polynucleotides comprising SEQ ID NO:1. Therefore, the specification contains an adequate written description of the claimed polynucleotides.

For all of the above reasons, Applicants respectfully assert that the Examiner has failed to meet the required burden in presenting evidence or reasons why those skilled in the art would not recognize the claimed invention from the disclosure. Moreover,

Applicants respectfully assert that the Examiner will be unable to meet the required burden because the specification conveys with reasonable clarity that Applicants were in possession of the claimed invention. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 73-74 under 35 U.S.C. § 112, first paragraph.

The Examiner has also rejected claims 73-74 under 35 U.S.C. § 112, first paragraph, because the specification, while enabling for a fragment consisting of at least 30 and 50 nucleotides of residues 630 to 750 of SEQ ID NO:1, allegedly does not enable the use of a fragment comprising at least 30 and 50 nucleotides of residues 630 to 750 of SEQ ID NO:1. In particular, the Examiner contends that claims 73-74 would encompass "countless number of sequences with an unknown function."

Applicants respectfully disagree and traverse this rejection.

In the rejection, the Examiner simply generalizes that the specification allegedly fails to disclose the specific function of the claimed sequences. (*See* Paper No. 17, Pages 6-7.) Importantly, the Examiner has failed to provide any showing that the specification would not enable one skilled in the art to practice the claimed subject matter.

Applicants have provided the skilled artisan with the sequence of the novel t-PALP gene. Applicants have also described fragments of SEQ ID NO:1 that are specifically contemplated. For example, the specification at page 12, lines 34-36, and Figure 3 describe fragments that encode the amino acid sequence of epitope-bearing portions of a t-PALP polypeptide, which could be used, for example, to raise antibodies. The specification further describes specific polynucleotide fragments that encode the amino acid sequence of specific portions of a t-PALP polypeptide that may retain biological or immunologic activities. (*See, e.g.,* Specification at Pages 27-32.) Therefore, the

specification clearly enables one skilled in the art to practice the claimed subject matter. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 73-74 under 35 U.S.C. § 112, first paragraph.

B. Claims 56 and 71

The Examiner has rejected claims 56 and 71 under 35 U.S.C. § 112, first paragraph, because the specification would allegedly not convey to one skilled in the art that the inventors had possession of the claimed invention at the time the application was filed. (*See* Paper No. 17, Page 7.) In particular, the Examiner contends that the specification allegedly does not support a composition comprising a polynucleotide and a thrombolytic agent.

In response, although Applicants respectfully disagree and do not acquiesce with these rejections, Applicants have canceled claims 56 and 71, thereby obviating any rejection of these claims.

The Examiner has also rejected claims 56 and 71 under 35 U.S.C. § 112, first paragraph, as allegedly non-enabled. (*See* Paper No. 17, Pages 7-8.) In particular, the Examiner contends that the specification does not enable a composition comprising a polynucleotide and a thrombolytic agent.

In response, although Applicants respectfully disagree and do not acquiesce with these rejections, Applicants have canceled claims 56 and 71, thereby obviating any rejection of these claims.

C. Claim 54

The Examiner has rejected claim 54 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. (*See* Paper No. 17, Page 8.) In

particular, the Examiner contends that claim 54 is drawn to a method for producing a protein by culturing a host cell under conditions suitable to produce a polypeptide. The Examiner appears to be referring to the contention in Paper No. 13 that "[a]ccording to the US Patent Classification System (class 530/350), the term 'protein' encompasses more than 100 amino acid residues." (*See* Paper No. 13, Pages 6-7.)

Applicants respectfully disagree and traverse this rejection.

Applicants assert that one of ordinary skill in the art would understand that a molecule may comprise 100 or less amino acid residues and still be designated a "protein." However, solely in the interest of facilitating prosecution, Applicants have amended claim 54 to delete reference to the term "protein" and to insert reference to the term "polypeptide." Applicants assert that the Examiner's concern has been addressed and that the rejection has been obviated. Therefore, Applicants respectfully request that the rejection of claim 54 under 35 U.S.C. § 112, second paragraph, be withdrawn.

D. Claim 74

The Examiner has rejected claim 74 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. (*See* Paper No. 17, Page 8.) In particular, the Examiner contends that it is unclear whether claim 74 is encompassing one fragment or two fragments.

Applicants respectfully disagree and traverse this rejection.

Claim 73 is drawn to an "isolated polynucleotide comprising a nucleic acid of at least 30 contiguous nucleotides," and claim 74 is drawn to the "isolated polynucleotide of claim 73, wherein said nucleic acid further comprises at least 50 contiguous nucleotides" (emphasis added). Applicants respectfully note that the term "said nucleic acid" in claim

74 clearly refers to its antecedent "a nucleic acid" in claim 73; thus, the term "at least 50 contiguous nucleotides" in claim 74 modifies the term "a nucleic acid" from claim 73, rather than modifying "a polypeptide." Because claim 74 particularly points out and distinctly claims an isolated polynucleotide comprising a nucleic acid of at least 50 contiguous nucleotides, Applicants respectfully request that the rejection of claim 54 under 35 U.S.C. § 112, second paragraph, be withdrawn.

IV. Rejection of the Claims under 35 U.S.C. §102.

The Examiner has rejected claims 73-74 under 35 U.S.C. § 102(a) as allegedly being anticipated by Du et al. (*See* Paper No. 17, Pages 8-9.) In particular, the Examiner contends that Du et al. teach a sequence comprising at least 50 nucleotides of residues 630-750 of SEQ ID NO:1.

Applicants respectfully disagree and traverse this rejection.

A Rule 131 Declaration is sufficient to swear behind a cited reference, if the reference was filed less than a year prior to applicant's effective filing date. As discussed in M.P.E.P § 715.02, a Rule 131 Declaration is required to show no more than the reference shows. (M.P.E.P. § 715.02, page 700-142.)

Submitted herewith is an executed Declaration of Paul Moore, Steven Ruben, and Reinhard Ebner Under 37 C.F.R. § 1.131 that demonstrates possession of the claimed invention prior to May 12, 1997, which is the alleged date of publication of Du et al. The Inventors demonstrate that they were in possession of cDNA clone "HMSIB42X," that they had sequenced the human cDNA insert and deduced the amino acid sequence thereof, and that they had deposited the cDNA clone at the ATCC as Deposit No. 209023, all prior to May 12, 1997, and all in the United States.

Applicants respectfully assert that the showing in the Rule 131 declaration is sufficient to antedate Du et al., thereby obviating the 35 U.S.C. § 102 rejection. Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 102 in view of the comments made above and the Declaration submitted herewith.

Conclusion

Entry of the above amendment is respectfully solicited. In view of the foregoing remarks, Applicants believe that this application is now in condition for allowance, and an early notice to that effect is urged. The Examiner is invited to call the undersigned at the phone number provided below if any further action by Applicant would expedite the examination of this application.

Finally, if there are any fees due in connection with the filing of this paper, please charge the fees to our Deposit Account No. 08-3425. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above or in the Petition for an Extension of Time submitted concurrently herewith, such an extension is requested and the appropriate fee should also be charged to our Deposit Account.

Respectfully submitted,

Dated: January 25, 2001

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Enclosures